

MiFID Best Execution Benchmark

Executive Summary:

The Markets in Financial Instruments Directive, a cornerstone of the Financial Services Action Plan, was proposed in November 2002 to replace the existing Investment Services Directive of 1993. It was designed to cope with, and to further enable, the increased level of cross-border investment transactions. MiFID was adopted in April 2004 and will take effect in November 2007. Article 21 of MiFID covers Best Execution – a firm must take all reasonable steps to obtain the best possible result, taking into account price, costs, speed, likelihood of execution and settlement, size, nature or any other consideration relevant to the execution of the order.

In this paper we propose a model to benchmark best execution quality; based upon parameters suggested by the EC. It is hoped that the model will go a long way in establishing a best execution benchmark that can be applied by firms to comply with MiFID guidelines concerning best execution.

About the Author

Dr. Kiran Karande
Senior Consultant,
email: kiran_karande@infosys.com
Mobile: +31 614 337 319

Infosys Technologies Limited,
B-1, 2nd floor, Phase 1,
Hinjewadi, Pune – 411 057

The Markets in Financial Instruments Directive (MiFID), a cornerstone of the Financial Services Action Plan, was proposed in November 2002 to replace the existing Investment Services Directive of 1993. It was designed to cope with, and to further enable, the increased level of cross-border investment transactions. MiFID was adopted in April 2004 and once implemented; securities trading throughout the European Union (EU) will become more efficient, quicker and cheaper and will afford greater protection to investors. MiFID will set a comprehensive regulatory regime, impose higher standards and include commodity derivatives. It therefore aims to produce greater harmonization of European laws and encourage capital market integration in the EU.

The goal of MiFID is to ensure that investors and intermediaries can transact freely with clients in other European Economic Areas (which include Norway, Switzerland and Liechtenstein in addition to the EU member states) on the same terms and conditions as business transacted in their home country. Issuers should be able to tap a deeper and more liquid market, with lower spreads and transaction costs as well as reduced cost of capital.

Best Execution – An Overview

Section 2, Chapter II of MiFID Directive deals with provisions to ensure investor protection. Article 21 in this section covers best execution:

Obligation to execute orders on terms most favorable to the client: Member states shall require that investment firms take all reasonable steps to obtain, when executing orders, the best possible result for their clients taking into account price, cost, speed, likelihood of execution and settlement, size, nature or any other consideration relevant to the execution of the order.

In support of this process-based approach, a firm is also required to have effective arrangements for complying with Article 21 – an 'execution policy' explaining the factors the firm will consider when executing orders and providing information about the 'execution venues' it will use, inform clients about its execution policy and obtain their consent, assess the execution venues in its execution policy at least annually and consider including other execution venues, monitor the effectiveness of its execution arrangements and upon request, show that a client's order has been executed in line with the firm's execution policy.

Best execution obligations (Article 21 of the level 1 Directive) are central to the structure and logic of the Directive. They not only form a fundamental element of investor protection, but are also necessary to mitigate problems associated with market fragmentation. The measures in Articles 44 to 46 of the implementing Directive complement the Directive in three main areas: they clarify the process of achieving best execution by investment firms, the scope of application of the best execution requirements, and the principle of best execution for retail clients, where

the European Commission (EC) considers that strong, common investor protection standards are required.

Article 21 of the level 1 Directive (Best Execution) provides that an investment firm should follow a basic three step approach in establishing and implementing its execution policy. First, depending on the nature of the clients and their needs, an investment firm should decide which factors affecting the result of execution should be given priority for clients generally or particular groups of clients. As a minimum, it should establish a process by which it determines the relative importance of these factors in light of its duty to deliver the best possible result to its clients.

Secondly, in accordance with Article 21(3) of the level 1 Directive, the investment firm should analyze the available execution venues in order to identify those venues that will enable it to obtain the best possible result and take the necessary steps to execute its client orders in those venues. This does not mean that every investment firm will have to connect at any cost to almost every execution venue. If the costs of connecting to certain execution venues would be disproportionate and lead to a heavy overall increase in fees, it is not expected that firms should be obliged to connect to such venues. This is consistent with the principle that firms must take all *reasonable* steps to deliver the best possible result.

Thirdly, client orders should be routed, on an order-by-order basis, to the appropriate venues, taking into account the relative importance of the factors as set out in the firm's best execution policy. It is important to stress that the best execution obligation should apply on an order-by-order basis. This is not only in the immediate best interest of the client but also to promote competition between execution venues in the longer term. Trade should be driven to those venues that can consistently provide the highest quality results.

The needs of the typical retail investor related to the execution of his order usually differ from those of a large institutional investor or a hedge fund. Retail clients have very little opportunity to monitor whether the investment firm that executes orders on their behalf has indeed complied with the best execution obligations, since they are unlikely to have the time or specialized knowledge to understand or evaluate detailed disclosures related to best execution. Neither, in most of the cases, do they have the resources to make an effective comparative evaluation of the execution policy of the firm. In order to maintain investor confidence it is therefore necessary that a clear benchmark be set for the execution of retail client orders. Article 44(3) of the implementing Directive provides that, in respect of retail client orders, the total consideration paid by the client in terms of price and cost should be the most important factor in determining what constitutes the best possible result for the purpose of best execution obligation.

This does not mean that all other aspects that could have an influence on the total consideration paid by the client should be neglected. In addition to direct costs, which may be accurately anticipated, transactions are also subject to indirect costs such as market impact (when the trader's own activity moves the market against

him) and implementation shortfall (when the market moves in the direction anticipated by the trade, but before the trade is complete). Such costs, which are difficult to estimate, may be part of the calculation to determine the total consideration payable by the client. The combination of price and cost is vital because a simple comparison between displayed bids and offers is not sufficient to identify the Exchange most suitable for executing a customer's order.

A proper assessment should take into account the different costs that order would attract if executed at each of the competing venues. Costs that should be taken into account include commissions, fees, taxes, exchange fees, clearing and settlement costs or any other costs passed on to the client by intermediaries participating in the transaction. The vast majority of these costs should be duly incorporated in the best execution policy.

The implementing Directive distinguishes between external and internal cost of execution of retail client orders, and only the external cost is to be included in the calculation of the total consideration to be paid by the client. The firm's internal commissions have been excluded from the calculation because to include a firm's own commissions in the concept of the best possible result could create problems by introducing an element of self-reference. However, the internal commission charged by the firm to the client for the execution service should be non-discriminatory, in the sense that any differences in commissions between venues must reflect differences in underlying costs to the firm (Article 44(4)). In addition, firms should not structure their commissions in such a way as to overcharge clients for the most used venues since this would contravene the principle to act in the best interest of the client.

The opinion has been put forward that best execution obligations have been designed with a particular market structure in mind – that of equity market – while ignoring particularities of other, dealer-dominated or quote-driven markets such as bonds or foreign exchange market. It has been argued that best execution should not apply in relation to instruments predominantly traded in such markets because clients should be considered to be counter-parties to whom investment firm owes no fiduciary interest for the purpose of such transactions. Such an interpretation is contrary to the letter and the spirit of the Directive. It is therefore clarified in the Directive that dealing on own account with clients is subject to the best execution obligations. Unless the client expressly requests that an investment firm deal with him at the price quoted by that firm, the firm is under an obligation to search the market to see whether a better price may be on offer elsewhere.

However, the Directive recognizes that, due to differences in market structure as well as the nature of certain financial instruments, it is not possible to apply best execution obligations in the same manner in all cases. For example, when a firm enters into a highly customized transaction involving an Over the Counter derivative contract, it may not be possible for it to obtain a 'better' result by going to the market-place in search of an equivalent financial instrument in the same way an

investment firm may do so when executing client orders in relation to securities for example. This is because the contract involves a unique relationship between the firm and the client which is based on a series of judgments including that related to the counter-party risk associated with the particular client.

Nevertheless, the lack of a precise or wholly reliable benchmark comparison does not relieve an investment firm of its duty to act in the best interest of the client and hence its best execution obligations. This means that the pricing of the instruments should be sound to the extent it takes reasonably into account the market value of the variables that enter into the pricing process or, where possible, uses available comparisons and realistic assessment of risk. Investment firms, though always subject to best execution obligations are not expected to meet such obligations in the same way for each type of instrument.

Best execution is more than achievement of the best price. Price is significant, but execution quality can depend on other factors as well.

Best Execution – Benchmark / Reference

The Investment Services Directive (ISD) has been the most significant European Union legislation for investment intermediaries and financial markets since it was implemented in 1993. It is now being completely replaced by MiFID which extends the coverage of the current ISD regime and introduces new and more extensive requirements to which firms will have to adapt, in particular in relation to their conduct of business and internal organization.

Best execution requirements are rightly seen as a key component of securities market regulation, for two reasons. First, best execution provides assurance to consumers that firms will act in their best interests when dealing for them in the market. And second, by requiring firms to seek out the best deals for their customers it facilitates the price formation process and market efficiency.

For consumer protection purpose, best execution requirements set standards of due care and diligence that an investment firm should follow when dealing with its customers in financial instruments and markets. As such, they should give consumers confidence that firms will act in their best interests. They also provide a basis for redress if a firm fails to meet its obligations in a way that results in consumer loss. Best execution requirements also contribute to market efficiency and price formation by providing an added incentive for firms to seek the best deals for their customers. By supporting competition between firms and execution venues for order-flow, best execution works to the benefit not only of each firm's customers, but also to the benefit of market participants and investors in general.

When executing client orders, investment firms shall take into account the following criteria for determining the relative importance of the characteristics of the client order:

- a) Client type – whether retail or professional

- b) Financial instrument – equity, fixed income, derivative etc.
- c) Execution venue – Exchange, Multi-lateral Trading Facility, Internalization

Where an investment firm executes an order on behalf of a retail client, the best possible result shall be determined in terms of the total consideration, representing the price of the financial instrument and the cost related to execution, which shall include all expenses incurred by the client which are directly related to the execution of the order, including execution venue fees, clearing and settlement fees and any other fees paid to third parties involved in the execution of the order.

For the purpose of delivering best execution where there is more than one competing venue to execute an order for a financial instrument, in order to assess the results for the client that would be achieved by executing the order on each of the execution venues, the firm's own commissions and costs for executing the order on each of the execution venues shall be taken into account in that assessment. Member states shall require that investment firms do not structure or charge their commission in such a way as to discriminate unfairly between execution venues.

Investment firms shall take all reasonable steps to obtain the best possible result for a client to the extent that it executes an order or a specific aspect of an order following specific instructions from the client relating to the order or the specific aspect of the order.

By definition, best execution is an inherently fuzzy notion. It could mean best price or minimum cost or quick execution. Best execution is also dependent on asset class and execution venue, size of trade and market structure among others. Hence, any benchmark for (best) execution quality will have to take into account (at least) the following factors:

- a) **Definition:** Best execution can be defined in multiple ways e.g. best price (lowest bid, highest offer), minimum transaction cost, shortest execution time etc. Before embarking upon the quest for a best execution benchmark, it is important to first examine whether such a benchmark is feasible at all. Primarily, the benchmark will depend on a clear definition of best execution. With no clarity and consensus on the definition itself, creating a benchmark is a challenge.
- b) **Asset class:** A best execution benchmark will naturally depend on the asset class – it will be different for equity, fixed income, foreign exchange and commodity. It will also be different for derivatives – futures, options and swaps. Due to the intrinsically diverse nature of assets, different asset classes will have different benchmarks.
- c) **Execution venue:** MiFID permits at least three ways to execute a trade. The first method is to execute it in a "regulated market" (basically a Stock Exchange). Another manner in which a trade can be executed is by way of a Multi-lateral Trading Facility (MTF). A MTF is basically settling a trade between two counter-parties trading with *same* broker. In a MTF, the trade is settled at the broker level itself within its two clients. A third way is "systematic internalization". In

this, a trade is executed by a broker by itself acting as a principal; a counter-party to the client. Evidently, a best execution benchmark will be different for different types of execution of trade. Especially in the case of systematic internalization, where the broker is himself acting as a counter-party to his client, best execution is an inherent conflict between maximizing profit for the broker against getting the best deal for the client. Similarly, in the case of a MTF, it will always be the case that an executed trade is “best” for *either* client but not both. Finally, in the case of trades executed on Stock Exchanges, best execution will depend on choice of Stock Exchange. Another major avenue for trade execution is the Over-the-Counter (OTC) market (where best execution evaluation is especially difficult). In such circumstances, execution venue is a critical factor in determining best execution benchmark.

- d) **Client:** MiFID recognizes basically three types of clients – retail, professional and eligible counter-party. Of these, eligible counter-party is the most sophisticated (presumably requiring least best execution clauses). Even professional clients are assumed to be sophisticated enough to be able to evaluate best execution on their own (without broker assistance). Retail clients are the ones who most require best execution assurance from the investor protection point of view. However, it is important to note that from the market efficiency point of view, best execution should be mandated for all three types of clients. Thus, we see that best execution benchmarks will be different for different types of clients.
- e) **Price:** The relevance of price in creating a best execution benchmark needs no discussion. For some, best price (lowest bid, highest offer) is synonymous with best execution (One of the aims of this document is to dispel this erroneous notion). For example, cost and speed of execution are also (equally) important determinants of best execution – they are discussed next.
- f) **Cost:** Achieving best price is certainly a primary component of best execution. However, it is important to note that as a complement, minimizing cost is an equally important aspect of best execution. For a client, what matters is net value, whether realized by improving price or by reducing cost. While considering cost of execution, it is essential to distinguish between internal and external costs as well as implicit and explicit costs in terms of commissions and brokerage fees, technology costs, statutory and regulatory payments, as well as administrative charges.
- g) **Execution likelihood and speed:** A very basic and significant characteristic of best execution is the guarantee that an order will get executed. Actually, this is more critical than any other factor since the inability to execute an order in the first place will render price, cost and other considerations irrelevant. Once an order is actually executed, then speed and timing of execution will occupy an important position in creating a best execution benchmark. When an order is executed, what matters most is the speed with which it is executed; a large delay may cause price and cost considerations to become immaterial. At times, for

some clients (e.g. program traders), speed of execution may be such an important consideration that best price and minimum cost may cease to matter. On the other hand, for retail clients a small delay is not really a critical issue. In such cases, a best execution benchmark will have to be treated differently.

- h) **Client instructions:** This may overrule best execution. Simply put, once a client gives specific instructions, best execution may be at variance with client directives. In such circumstances, a best execution benchmark may be inherently not in line with client requirement. For example, a client may wish to execute an order at a particular time (regardless of price, cost); in such cases, adherence to best execution benchmarks may not be possible. Alternatively, a client may insist on **anonymity** at the cost of best execution, in which case also adherence to a best execution benchmark may be difficult.
- i) **Size:** A key feature of a best execution benchmark is the size of trade because of its direct relevance to **impact cost**. Clearly, while executing an order, price and cost considerations will vary with size of order and hence a best execution benchmark must take size of order into consideration.
- j) **Market structure:** It is easy to see that a best execution benchmark would be dependent on and different for diverse market structures such as liquid versus illiquid markets, global versus domestic markets, integrated versus fragmented markets. For example, if a security is traded on Stock Exchanges across countries, determining best execution for such a security will be different as compared to another security being traded on a single domestic Stock Exchange.
- k) **Regulations:** Government regulations such as price limits among others can significantly affect a best execution benchmark.
- l) **Monitoring and Reporting:** Another aspect of best execution is transparency. It is possible to visualize cases or circumstances where proper monitoring and reporting of client orders or creating **audit trails** is more important than price and cost considerations (for example, in a developing country). In such conditions, creating a best execution benchmark is an entirely different case altogether.
- m) **Technology:** Best execution can be considered a function of technology given that it will be different for an open outcry system vis-à-vis an Electronic Communication Network (ECN). Thus, technology is an important consideration in creating a best execution benchmark.
- n) **Bundling of services:** Most brokers, apart from executing orders of clients blindly, do research as well as give advice to them. These are some additional soft services being provided by brokers to clients. In such cases, where commission, brokerage fee and other service charges are 'bundled' together (as a package); constructing a clear, quantitative best execution benchmark becomes all the more difficult.

Best execution benchmark is a function of price, cost, size of trade, likelihood and speed of execution, type of client and execution venue, among others.

Best Execution – A Reference Model

Although much attention has been paid to regulating and monitoring best execution, there remains some uncertainty regarding the meaning of the term. Different market participants have different opinions as to what best execution implies. Pension fund trustees refer to best execution as the realization of expected investment returns, low commissions and ultimately the preservation of assets. Investment managers and buy-side traders have a more mechanical view, and evaluate best execution in terms of a reduced cost of trading and efficient implementation of their desired trading strategy. Retail investors view best execution in more simple terms as the ability to achieve timely fills and low commissions.

These differing viewpoints make it impossible to create one universal definition and to formulate rigid measurement standards for all market participants. We can divide an investor's best execution requirements into three basic elements – price, time, and size. The ultimate goal of the investor determines the proportion of these three elements that are required to characterize an order execution as good or bad. For example, a passive, value-oriented, investor's main goal is price improvement, with less emphasis on immediacy and liquidity enhancement. Conversely, an active, momentum investor values immediacy and liquidity enhancement over price improvement.

Traditionally, best execution has been approached from an historical perspective by evaluating transaction costs after trading has occurred. While this is an important step, it does not go far enough. There are several problems with using post-trade evaluation as the sole indicator – mainly that it is a reactive and non-prescriptive method of reducing cost. Other problems lie in using an inappropriate methodology and the possibility of inaccuracy due to data change, such as corporate actions or symbol issues. In order for best execution to be achieved, its pursuit should be integrated into the entire trading life cycle. This implies that best execution is a process that is inherent in the trading operations of the firm, rather than represented in the results of a formula.

The key to cost reduction is to try to preempt costs before they occur and to minimize the friction between different aspects of the trading process through automation. **Execution quality can be calculated only by comparing the realized post-trade cost to a pre-trade assessment of the expected cost.** The expected cost is preferably determined using a model that takes into account the appropriate factors that impact trading costs. Post-trade costs can be calculated using a reference price that is applicable to the estimation model.

The comparison of execution data to a single reference price is a less-than-optimal means of evaluating best execution. A better idea is to integrate a variety of price points not only to provide a benchmark for trading but also to identify where

value may be deteriorating or timing issues may exist. Such a three-dimensional approach to performance measurement provides views of: a) market impact cost by looking at price of stocks prior to trading, b) intra-day cost through values such as the volume-weighted average price in order to gain perspective on the efficacy of trade participation throughout the trading day and c) post-trade costs through reference prices such as the close of the trading day in order to evaluate movement in the stock after trading. Time-stamped order and trade data can significantly bolster evaluation by focusing reference prices on times when related transactions were open. Additionally, when order data is available, opportunity cost and implementation shortfall should also be used to highlight the intrinsic cost associated with implementation¹.

Based on the parameters suggested by the EC, we suggest the following model to benchmark best execution quality. The model is based on directives of the European Commission as set out in Directive 2004/39/EC (April 2004), EC Directive (June 2006) and EC Directive Background Note (June 2006). The key parameters that affect best execution quality and must therefore be part of any model that proposes to benchmark it have already been listed and discussed in Section 7 above.

Article 21, Section 2 of Directive 2004/39/EC published in the Official Journal of the European Union dated April 30, 2004 (Obligation to execute orders on terms most favorable to the client) relates to best execution quality. Paragraph 1 of this Article (21) specifies the **factors** to be taken into consideration for determining best execution. Paragraph 2 of the same Article (21) requires that firms establish an **order execution policy** for best execution. Paragraph 3 details what the policy should include – key issues such as execution venue for each class of asset.

A joint reading of the above three documents clearly establishes the following hierarchy for best execution as envisaged by the EC and therefore a basis for the model:

- a) Availability of a best execution policy
- b) Client – retail / professional
- c) Client order – any special instructions from client
- d) Financial instrument – equity / fixed income / foreign exchange / commodity / cash / derivatives / swaps etc.
- e) Execution venue – regulated market / multi-lateral trading facility (MTF) / systematic internalizer / market maker etc.
- f) Likelihood and speed of execution
- g) Price and cost (total consideration)

The best execution cycle for **any** order must begin with the best execution policy document, which will outline the process by which best execution will be achieved. It will cover inter alia the process by which the firm determines the relative

weight given to the factors that comprise best execution e.g. price, cost, likelihood as well as speed of execution etc. It is important to stress that the best execution obligation should apply on an order-by-order basis. The selection of the execution venues, amongst those that are included in the best execution policy of the firm, to which the order is to be routed, has to be done for each order received. Trade should be driven to those venues that consistently provide the highest quality results.

In this paper we restrict the best execution benchmark model to **retail clients in the equity domain**. In other words, this model does not apply to best execution for professional clients; nor does it apply to trades in the fixed income, foreign exchange, commodity, derivative etc. segments. Also, since we are dealing with retail clients who do relatively small size trades, trade size and impact cost are not considered in the model as they are unlikely to be significant. Both likelihood and speed of execution will be important factors. Price and cost of trading (total consideration) will be vital components in the model.

The model in this paper caters to best execution for retail clients in the equity domain. Retail clients have very little opportunity to monitor whether the investment firm that executes orders on their behalf has indeed complied with the best execution obligations, since they are unlikely to have the expertise to understand or evaluate detailed disclosures related to best execution. They also do not have the resources to make an effective comparison of the best execution policy for various competing firms. It is therefore necessary that a clear benchmark be set for the execution of retail client orders. In this context, the EC has directed that in respect of retail client orders, the total consideration paid by the client in terms of price and cost should be the most important factor in determining what constitutes best execution.

The combination of price and cost is vital because a simple comparison between displayed bids and offers is not sufficient to identify the Exchange most suitable for executing a customer's order. A proper assessment should take into account the different costs that order would attract if executed at each of the competing venues. Costs that should be taken into account would include commissions, fees, taxes, Exchange fees, clearing and settlement costs or any other costs passed on to the client by the intermediaries participating in the transaction. The vast majority of these costs should be known in advance, calculated and duly incorporated in the best execution policy. The EC directive distinguishes between external and internal costs of execution for retail client orders, and only the external costs mentioned above are to be included in the calculation of the total consideration to be paid by the client.

It is argued by some that best execution obligations have been designed with a particular market structure in mind – that of equity markets – while ignoring characteristics of other dealer-dominated or quote-driven markets such as bonds or foreign exchange markets. The EC directive recognises that due to differences in market structure as well as the nature of certain financial instruments, it is not

possible to apply best execution obligation in the same manner in all cases. Hence, to begin with, the model in this paper deals only with equity market.

Thus, in the restricted model (retail clients in equity domain) in this paper, the Best Execution Benchmark (BEB) is computed as a *weighted* average of the firm's performance on the following five parameters (weight in parentheses; weights are tentative and likely to change).

- a) Execution policy (0.15) – whether the firm has an execution policy in place, which is reviewed and updated regularly.
- b) Special instructions (0.15) – whether the firm is able to carry out any special instructions by the client.
- c) Likelihood of execution (0.20) – what is the probability that the firm will be able to successfully execute the order in a given time frame.
- d) Speed of execution (0.20) – how quickly the firm is able to execute the order within a given time frame.
- e) Total consideration (0.30) – the total consideration (price inclusive of all cost) received / paid by the client.

Thus, the model is as follows:

Best Execution Benchmark (BEB) = 0.15 * Execution Policy (EP) + 0.15 * Special Instructions (SI) + 0.20 * Likelihood of Execution (LE) + 0.20 * Speed of Execution (SE) + 0.30 * Total Consideration (TC)

A time frame is required for determining likelihood of execution; otherwise an order that remains unexecuted for a long time will simply remain open. To prevent firms from claiming certainty of execution, we need to specify a time frame within which if an order is *not* executed, it is automatically classified as unexecuted. In our model, we designate one minute (60 seconds) as the time frame (likely to change based upon empirical validation); that is, an order not executed within one minute will be deemed *not* to have been executed at all.

Let us now try and understand in detail how the model will work in practice. Any firm without a best execution policy in place or one that does not perform client special instructions will consistently score lower on the best execution performance index. Given that **all** firms have a best execution policy in place *and* carry out all client special instructions; then, likelihood and speed of execution along with total consideration will be the key parameters that would influence the best execution performance index.

For any firm, it should be relatively easy to incorporate likelihood of execution into its best execution benchmark, mainly because over a period of time each firm would be able to statistically calculate the fraction of orders that it has been able to successfully execute (keeping in mind our definition of likelihood of execution). This

fraction would lie between zero and one. So, a fraction of 0.95 for some firm would mean that the firm is able to successfully execute 95% of the orders that it receives.

Regarding speed of execution, the faster the execution (lower time taken for execution) the better it is for the firm in terms of execution quality. To incorporate this aspect of speed of execution in our model, the *sign* for this factor (SE) is negative. We suggest that the time taken to execute an order may be measured (in seconds) as the time interval between the instant an order is placed and it is executed. Execution time is converted into a scalar by dividing it by 60 (since we have already defined 60 seconds as the maximum time that an order can be open before it is classified as unexecuted). Thus the benchmark for speed of execution is 60 seconds.

Finally, the most critical question of all. How does one benchmark total consideration in the model? We suggest the following expected returns measure. Intuitively, when does an investor place an order – when she observes a price or quote either on screen of one or more Exchanges, or she obtains a quote from her broker and decides to buy or sell a particular stock. Thus, for an investor, the decision to transact in any stock (long or short) is critically dependent on the price that she sees on screen or is quoted while placing the order. This price should be considered as the reference or benchmark price. Alternatively, **the best price available with a broker for any execution venue (Exchange / MTF / systematic internalization) at the instant when an order is placed should be considered as the reference or benchmark price for that transaction.**

The actual price at which the order is finally executed should be compared with the reference price to determine the loss (gain) in asset value for each individual order. Of course, it is true that every time there need not be a loss in asset value due to delay in execution (it could as well turn out to be a gain). First, we calculate the difference between the benchmark net total consideration and the actual net total consideration for *each* executed order to get the loss (gain) in asset value for *that* order. Next, we divide the loss (gain) for every order by the benchmark net total consideration for that particular order so as to convert the loss (gain) from value to percent terms. Finally, we aggregate the percent losses (gains) and divide the sum by the total number of executed orders to get the mean expected returns.

Best Execution – An Illustration

The mechanics of the best execution benchmark model can be best illustrated with the help of the following example. At the outset, it is important to note that best execution is not a one-off number but an index calculated over a period of time. In practice, we can implement the above model in the following manner.

Let us consider the case of a broker firm A which is in the business of providing stock market related services to its clients, such as executing their orders etc. among other things. Let us also suppose that the broker firm wants to apply the model suggested in this paper to calculate a best execution benchmark index for itself. The

first aspect that the firm must decide is the time period to be considered for constructing the best execution benchmark index (because the benchmark is for a number of trades over a period of time). Let us suppose that the firm wishes to construct the benchmark for a time period of one calendar month.

To begin with, the firm accumulates as data, all the orders that it received for the time period under consideration. Then, it counts the number of orders for which it was able to explain its best execution policy to the client. Let us suppose that it was able to do so for 99% of its clients. Next, it counts the number of orders for which it was able to successfully carry out client instructions. Let us suppose that this fraction turns out to be 0.98. Further, the firm calculates the number of orders that it was able to successfully execute (applying the definition suggested in this paper). Let us suppose that this turns out to be 98.5%.

Next, the firm sums up the time taken for executing each order (time taken for execution is the interval between the instant the order was placed and it was executed) and divides it by the number of orders executed to obtain average execution time (in seconds). Let us suppose that this works out to 2.4 seconds. Applying our benchmark for execution speed of 60 seconds, this translates into a scalar value of 0.04 (2.4/60). Finally, the firm calculates the difference between the benchmark total consideration (at the time the order is placed) and the actual net total consideration (when the order is finally executed). This difference (positive or negative) is converted into percent terms by dividing each deviation by its corresponding benchmark consideration. The percent deviation for each executed order is then added up and divided by the number of orders to obtain a mean net total consideration deviation in percent terms.

To elaborate, for every order that the firm executes, there is a best net total consideration available amongst all possible execution venues at the time the order is placed. This is the net total consideration that the client has in mind while placing the order. When the order is finally executed, there is an actual net total consideration that the client pays / receives. We aggregate the difference between the benchmark and actual net total consideration for each and every executed order (the difference can be either positive, negative or sometimes zero) and divide it by the sum of benchmark net total consideration for those orders, to obtain the net total consideration deviation in percent terms. The net total consideration deviation is now divided by the total number of executed orders to obtain the **mean net total consideration deviation in percent terms**.

Let us suppose that for this firm the value turns out to be 0.5%. This means that for all the orders executed by this firm in this month, on an average, it was able to execute orders so that clients paid / received 99.5% of the net total consideration that they expected (a loss of 0.5% in asset value). With the above numbers, the best execution benchmark index for the firm (using the weights assigned in our model) will be: $0.15 \cdot 0.99 + 0.15 \cdot 0.98 + 0.20 \cdot 0.985 - 0.20 \cdot 0.04 + 0.30 \cdot 0.995 = 0.783$.

The best execution benchmark index can now be calculated using the model in the manner described above, for each firm for a specified time period. The individual indices for all firms can then be ranked to determine firms with a better best execution record. Over a period of time, firms with consistently better best execution record would clearly stand out. The best execution benchmark analysis as suggested in this paper can also be carried out for a variety of orders, stocks, brokers, time periods, industries etc., to generate a lot of meaningful results. Given the level of technology and data that is available today, this should not be a difficult task.

A best execution benchmark is more than a reference price. It is necessary to view best execution quality more as a policy and process than as a quantitative benchmark. It is hoped that the model suggested in this paper will go a long way in benchmarking best execution, the way the EC wants it.

Endnote:

1. This discussion is based on "The Process of Achieving Best Execution, Investment Guides: Transaction Performance, the Changing Face of Trading", *Euromoney*, Institutional Investor PLC (March 2002)

Acknowledgement:

Valuable comments from Parthiv Mehta and Amit Gaonkar (both from Infosys, Pune) are gratefully acknowledged.

References:

- "Background Note on Directive 2004/39/EC of the European Parliament", *European Commission* (June 2006)
- "Best Execution", *Consultation paper 154*, Financial Services Authority, UK (October 2002)
- "Best Execution and Soft Dollar Arrangements", *Concept paper 23-402*, Ontario Securities Commission (February 2005)
- "Directive 2004/39/EC of the European Parliament", *Official Journal of the European Union* (April 2004)
- "Directive 2006/73/EC of the European Parliament", *Official Journal of the European Union* (September 2006)
- "Implementing MiFID's Best Execution Requirements", *Discussion paper 06/3*, Financial Services Authority, UK (May 2006)
- "MiFID – An Introduction", *Report*, Celent (July 2005)
- "Options for Providing Best Execution in Dealer Markets", *White paper*, IBM Global Business Services (2006)
- "The Process of Achieving Best Execution, Investment Guides: Transaction Performance, the Changing Face of Trading", *Euromoney*, Institutional Investor PLC (March 2002)
- "Quantifying Best Execution at the New York Stock Exchange: Market Orders", *Working Paper 99-05*, NYSE (December 1999)